

REMARKS

Applicant thanks the Examiner for the courtesy extended during a telephone interview on April 15, 2003. The following remarks summarize the content of the interview.

During the interview, the undersigned discussed Claim 28, which was rejected over the patent to Lambert, Claim 32, which was rejected over Miller, and Claim 36, which was rejected over Gilbreath. These are the only independent claims now pending in the application.

Claim 28

The undersigned explained, during the interview, that in Lambert, the domed portion is not directly adjacent to the flange, but instead is offset by a cylindrical member, identified in the patent by reference numeral 44. In the present invention, the domed portion is connected directly to the planar flange surface.

Also, unlike the present invention, the bolt apertures in Lambert are not disposed in the flange portion 45.

It would not be desirable to incorporate the construction of Lambert into the present invention. First, the structure of Lambert is more expensive to manufacture than that of the present invention, because it requires additional material to provide the offset cylindrical member, and the weight of the finished part would therefore be greater. Moreover, for purposes of the present invention, no compensating benefit in strength would be derived from the adoption of Lambert's geometry.

Secondly, the structure of Lambert would make it more difficult to take pressure readings. Pressure readings, used to deduce fluid flow rates, are taken just upstream and downstream of the plate, and if the

domed portion is displaced by a cylindrical section similar to that of Lambert, it may become impossible to take a reading from the upstream side at all.

Applicant has therefore amended Claim 28 to recite a domed portion that is connected directly to the flat portion of the plate. This limitation is intended to distinguish over Lambert, in which the domed portion is offset, through a cylindrical member, from the flat portion. Claim 28 also now recites that the flat portion is generally perpendicular to the direction of fluid flow. The latter recitation makes it clear that the "flat portion" cannot be identified with the cylindrical member 44 of Lambert.

Applicant therefore submits that Claim 28, and the claims dependent therefrom, define patentably over Lambert, and are allowable. During the interview, the Examiner stated that amended Claim 28 would indeed distinguish over Lambert.

Claim 32

Claim 32 has been rejected over Miller. Applicant has not amended Claim 32 because the claim already clearly distinguishes over Miller for the following reasons.

Claim 32 requires that the domed portion be convex in the direction of the "first component". The claim recites that the apparatus provides controlled flow of fluid from a first component to a second component. Thus, the convex dome points against the fluid flow. Stated another way, the fluid flows into a convex surface, not into a concave surface.

Miller teaches exactly the opposite of what is claimed in Claim 32. In Miller, the fluid flows into the concave side of depression 19. Applicant refers the Examiner to page 2 of Miller, at column 2, lines 2-13.

The patent clearly states that "the air-fuel mixture flows through the air-fuel mixture passage 15" and "strikes the depression or concavity 19", and then "flows through the central fuel outlet opening 20" in depression 19. It is clear that, in Miller, the fluid flows into the concave side of the depression.

Note also that the above-quoted portion of Miller speaks of imparting a "whirling" motion to the fluid. This is directly opposite to the teaching and intent of the present invention. In Miller, inducing turbulence in the fuel-air mixture is desirable, but in the present invention, such turbulence is to be avoided, as the shearing of adjacent fluid layers tends to increase the frictional losses experienced by the fluid, resulting in an unrecoverable loss of pressure across the device. Hydraulic fluid is generally more viscous than an air-fuel mixture, and a whirling motion would be especially detrimental in the context of the present invention.

During the interview, the Examiner agreed that the above analysis of Miller is correct, and that Claim 32 distinguishes over Miller.

Applicant noted further, during the interview, that Claim 32, specifically relates to controlled flow of fluid from a first fluid component to a second fluid component. The claim does not relate to flow of fluid from a conduit to an outside environment. Thus, Applicant submits that any reference that merely shows fluid flow from a pipe to an outside environment, instead of showing fluid flow between two fluid components, would not be pertinent to the claimed invention.

Applicant therefore submits that Claim 32, and the claims dependent therefrom, are allowable.

Claim 36

Claim 36 was rejected over Gilbreath. Applicant has amended Claim 36 by adding an explicit recitation of the flange body which abuts the sealing plate. The claim now describes the structure that is shown, for example, in Figure 8B of the present application. This claimed structure is completely unlike that of Gilbreath.

Moreover, as explained by the undersigned during the interview, the device of Gilbreath, while it shows a bore whose diameter transitions from large to small, also shows that the bore returns to its original diameter and defines a recess (which recess can be identified by the arrow extending from reference numeral 80). Just as in Miller, this structure of Gilbreath intentionally creates a turbulent disturbance in the fluid (see, for example, column 7, lines 42-44).

In the present invention, there should be no turbulent flow, and there is no recess comparable to that of Gilbreath. Amended Claim 36 recites that the flange body and the sealing plate abut each other along surfaces along the downstream side of the sealing plate. This structure negates the possibility that fluid can flow back into a recess, as is true with Gilbreath.

The Examiner indicated, during the interview, that an amendment of the kind described above, would distinguish Claim 36 over Gilbreath.

Applicant submits that Claim 36, and the claims dependent therefrom, are allowable.

Applicant has cancelled the non-elected claims. The cancellation is without prejudice to Applicant's right to file one or more further applications relating to the subject matter of the cancelled claims.

Applicant has considered the other references cited by the Examiner, but not applied to the claims. None of these references is believed to affect the patentability of the present claims.

Applicant therefore submits that the claims, as amended, are allowable, and requests reconsideration, and early favorable action, by the Examiner.